

## Abstract

A method for controlling data cell transmission in a network can be implemented at a network element through which data cells are transferred between source and destination nodes. The method includes receiving a control cell on a virtual channel from a source node, generating a management event upon receipt of the control cell, and processing the management event to compute resource management data. Upon the subsequent receipt of a control cell on a virtual channel from a destination node, the control cell from the destination node is modifying using the computed resource management data and transmitted over the first virtual channel toward the source node. In another aspect, a data transmission apparatus regulates the transmission of data and control cells. The apparatus includes source and destination port circuitry, switching circuitry, management event circuitry, and return cell circuitry. The port circuitry couples the apparatus to links over which source and destination virtual channels can be established. The switching circuitry interconnects port circuitry and can exchange data and control cells between source and destination virtual channels. The management event circuitry is coupled to the source port circuitry to receive control cells from the source virtual channel and to compute resource management data. The return cell circuitry is coupled to the source and destination port circuitry and to the management event circuitry and can receive control cells from the destination port circuitry, modify control cells based on the resource management data computed by the management event circuitry, and provide the modified control cells to the source port circuitry for transmission over source virtual channels.